

Work Order ID **81882-1**

Tuesday, March 20, 2012 11:26:38 AM

81882

Page 1

Item ID: **D6104-003**

Revision ID:

Item Name: Round Billet, 17-4

Start Date: 3/20/2012 Start Qty: 20.00

Required Date: 3/26/2012 Req'd Qty: 20.00

Reference:

Accept

N900040100

Setup Start ***NS1***

Stop ***NS2***

Cust Item ID:

Customer:

Approvals: Process Plan:

QC:

Date:

Date:

Tooling:

SPC (Y/N):

Date:

Date:

Run Start ***NR1***

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D6104

Rev B

100

100

Purchasing

Purchasing

PURCHASING

Memo

Issue P/O: **16-507** a)Description: S.S round billet b) 03.25" x 3.80" long c) Tolerance on all dimensions are +0.030"/-0.000"d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630)e)One blank makes 2 partsf) Material certification required

0.00

0.00

OK 12/03/21 40

110

110

Packaging

Packaging

Receive & Inspect for Damage & Mat'l Certs

0.00

Memo

Ensure material certification is attached

0.00

OK 12/03/26 13

120

120

QC

Quality Control

QC6- Inspect dimensions to drawing

0.00

Memo

Ensure Material certification comply to Dwg D6104

0.00

OK 12/03/27

13

Work Order ID 81882

81882

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Tuesday, March 20, 2012 11:26:38 AM

Item ID: D5104-003

Accept

N9000040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Round Billet, 17-4

Start Date: 3/20/2012 Start Qty: 20.00

20

Cust Item ID:

Required Date: 3/26/2012 Req'd Qty: 20.00

20

Customer:

Reference:

Run Start *NR1*

Approvals: Process Plan:

Date:

Tooling:

Date:

Stop *NR2*

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

Identify as per dwg & Stock Location: MAT43 0.00

130

Packaging

Memo

0.00

Packaging

140

QC21- Final Inspection - Work Order Release 0.00

140

QC

Memo

0.00

Quality Control

on 12/03/27

13

MLJ 12/03/27

MLJ 12/03/27
(13)

Picklist Print

Tuesday, March 20, 2012 11:26:43 AM

Work Order ID: 81882

81882

Parent Item: D6104-003

D6104-003

Parent Item Name: Round Billet, 17-4

Start Date: 3/20/2012

Required Date: 3/26/2012

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP B: 01.09.04 Revised Step 2 SM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6104-003P		Purchased		No		110	Each	0.0000	1	20			

D6104-003P

17-4 SS Roundbar 3.25"OD

**

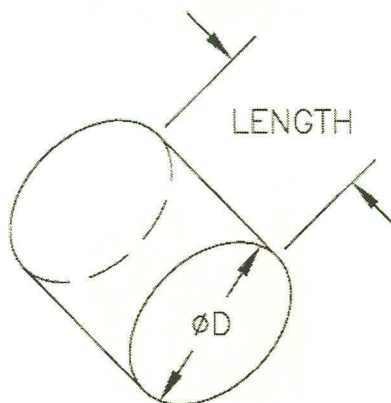
Inv 3/26 (13)



DESIGN JT	DRAWN BY [Signature]	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.29 [Signature]

SPECIFICATION CONTROL DRAWING



02/12/03/21
0101.81882

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRc)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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**Castle Metals®**

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 1 of 2

No de Formulaire d'Emballage / Shipment No:1243334

Expédié de / Ship From: A. M. Castle & Co. (Canada) Inc. MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Vendu à / Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Expédié à / Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Livré à / Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA			
Date d'expédition / Date Shipped 23-MAR-2012		F.O.B. ORIGIN		Modalités de transport / Freight Terms Prepaid		Transporteur / Carrier MANITOULIN		No du Bon de connaissance / BOL No 1243334-2	

Détails d'expédition / Shipment Details				Destination finale / Final Destination Branch - MON			
--	--	--	--	--	--	--	--

N° de commande / Order No 2086611	N° de ligne / Line No 2	N° d'article / Item No 42470.MO	Description 3.2500.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 3.8 IN (+ .0620/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643		
N° de bon de commande / Purchase Order No 16517		Nbre de pièces / Part Number YOUR ITEM NUMBER: D6104-003		Qté commandée / Ordered Qty 13.00 PCS	Qté Facturée / Invoice Qty 13.0000 PCS

Détails / Details		SHIP AS SOON AS POSSIBLE					
N° de livraison / Delivery No : 117482732	Usine / Mill	No de coulée / Heat Number 246747	Code méc / Mech Id	Pièces / PCS 13	Largeur (Pouce) / Width (IN)	Longueur (Pouce) / Length (IN)	Qté expédiée / Shipped Qty(LBS) 116.13

Ces marchandises/technologies sont sujettes aux règlements de l'Export Administration et du département d'Etat des Etats-Unis. Si elles ont été/sont exportées, elles doivent se conformer à ces règlements. Toute modification du contrat de transport contraire aux lois des Etats-Unis est interdite.
These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

Nous certifions par la présente que le matériel couvert par cette certification est conforme aux spécifications susmentionnées et aux exigences applicables pour le matériel, y compris toute spécification faisant partie de la description. Les rapports d'essai sont archivés pour fins de consultation. Toute requête concernant du matériel défectueux sera rejetée à moins qu'elle ne soit faite par écrit à A. M. Castle & Co. dans les 60 jours suivant la livraison. Le matériel coupé sur mesure ou coupé par le client ne peut être retourné pour crédit.
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Ce matériel a été reçu et inspecté par _____

Date: _____ Name: _____

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.
Date Printed: 23-MAR-2012 01:19:36 PM



Castle Metals®

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 2 of 2

Reviewed by Authorized Castle Metals Representative:			
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**VALBRUNA****SLATER STAINLESS, INC.**

2400 Taylor Street West, P.O. Box 630

Fort Wayne, Indiana USA 46801

Phone: 260-434-2892 Fax: 260-434-2905

Product Certification ReportReport Number: **4396350**

Certified on Sep 16, 2008 Page 1 of 2

Order I.D. 0801409 001		Order Date 5/19/08		Commodity Code 42470	
Dim 1 3.2500	Dim 2 .0000	Dim 3 .0000	Heat I.D. 246747	Customer I.D. 001117	Customer Purchase Order 10-39981
Product Shape Rounds		Product Surface HR & Rough Turned			Customer Grade 17-4
Length (Inches) 132.000 Min. 156.000 Max.		Bill of Lading # 408533		Weight	

Ship To
CASTLE METALS
 26800 MILES ROAD
 BEDFORD HEIGHTS, OH 44146
Sold To
VALBRUNA STAINLESS, INC.
 2400 TAYLOR STREET WEST
 FORT WAYNE, IN 46802

Lifts: 0027 0028

AISI 630

UNS S17400

AMS 2303E

CONDITION A

ASTMA 564-04

AMS 5643R

3174-10 Rev 4 DTD 08/27/03

ASMESA 564 01 ED 2002 ADD

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	N	Cb	Ta	Cb+Ta
.034	.64	.022	.023	.39	15.70	4.67	.18	3.32	.03	.21	.001	.211
Fe												
353												

TENSILE PROPERTIES**CAPABILITY**

HB	TS (PSI)	.2%YS (PSI)	%EL(4d)	%RA	AGE(F)
441	203000	176800	16.4	52.9	900

MAGNETIC PARTICLE TEST
 FREQ SEV
 AVG .13 .11
PRODUCTION HEAT TREATMENT
 SOL-ANN(F) SOL-ANN(HR) QUENCH
 1900 9.00 Air
MACRO ASTM E340/E381

MACRO

OK

OK

OK

PERCENT FERRITE

% FERRITE

AVG 1.0

Reduction ratio 5 To 1 Min.

Electric Furnace melted; AOD refined.

Ultrasonic test OK.

 Chemical testing performed to one or several of the following ASTM methods: E415, E572, E1019, E1085, E1086.
 No mercury or low melting alloy contamination. No weld repair.
 Material melted in Italy, manufactured in the United States.
 Material conforms to listed specifications.

 Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna
 Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony
 under federal statutes, including Federal law, Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info.
 I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services

 Dennis Hackett

T-243 P034/086 F-672

CASTLE METALS CORP.
 DATE RCVD 9/18/08
 IAC H2H
 APPROVED BY

**VALBRUNA****SLATER STAINLESS, INC.**2400 Taylor Street West, P.O. Box 630
Fort Wayne, Indiana USA 46801
Phone: 260-434-2892 Fax: 260-434-2905**Product Certification Report****Report Number: 4396350**

Certified on Sep 16, 2008 Page 2 of 2

Order I.D. 0801409 001		Order Date 5/19/08		Commodity Code 42470	
Dim 1 3.2500	Dim 2 .0000	Dim 3 .0000	Heat I.D. 246747	Customer I.D. 001117	Customer Purchase Order 10-39981
Product Shape Rounds			Product Surface HR & Rough Turned		Customer Grade 17-4
Length (Inches) 132.000 Min. 156.000 Max.			Bill of Lading # 408533	Weight	

**Ship
To**CASTLE METALS
26800 MILES ROAD
BEDFORD HEIGHTS, OH 44146**Sold
To**VALBRUNA STAINLESS, INC.
2400 TAYLOR STREET WEST
FORT WAYNE, IN 46802Quality system is compliant with ISO 9001:2000. Produced in accordance with EN 10204 3.1B.

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Manager Laboratory Services

Dennis Hackett

